

Concrete Block Insulating Systems

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TOTAL THERMAL RESISTANCE (R-value) of a 12" x 8" x 16" HI-R-H CONCRETE BLOCK USING ASHRAE SERIES-PARALLEL ISOTHERMAL PLANES METHOD

Type 1 Wall: HI-R-H Wall System Only

Type 2 Wall: Hi-R-H Wall System, ½ inch gypsum board on furring strips

Type 3 Wall: Hi-R-H Wall System, ½ inch foil-backed gypsum board on furring strips

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|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Concrete Density (lb/ft³) | 80 | 95 | 100 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 |
| Kconcrete | 2.48 | 3.34 | 3.69 | 4.08 | 4.51 | 4.99 | 5.51 | 6.09 | 6.73 | 7.44 | 8.22 | 9.09 |
| Concrete Resistivity (Rc) | 0.403 | 0.299 | 0.271 | 0.245 | 0.222 | 0.200 | 0.181 | 0.164 | 0.149 | 0.134 | 0.122 | 0.110 |

| CMU SIZE-12" | | | | | | | | | | | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 12 x 8 x 16 HI-R-H Wall Type 1-Insulated | 18.73 | 16.65 | 15.96 | 15.28 | 14.61 | 13.95 | 13.30 | 12.66 | 12.04 | 11.45 | 10.86 | 10.31 |
| 12 x 8 x 16 HI-R-H Wall Type 1-Insulated | 0.053 | 0.060 | 0.063 | 0.065 | 0.068 | 0.072 | 0.075 | 0.079 | 0.083 | 0.087 | 0.092 | 0.097 |
| 12 x 8 x 16 HI-R-H Wall Type 1-Insulated & Grouted 125lb/cu.ft. | 18.417 | 16.337 | 15.647 | 14.967 | 14.297 | 13.637 | 12.987 | 12.347 | 11.727 | 11.137 | 10.547 | 9.997 |
| 12 x 8 x 16 HI-R-H Wall Type 1-Insulated & Grouted 125lb/cu.ft. | 0.054 | 0.061 | 0.064 | 0.067 | 0.070 | 0.073 | 0.077 | 0.081 | 0.085 | 0.090 | 0.095 | 0.100 |
| 12 x 8 x 16 HI-R-H Wall Type 1-Insulated & Perlite | 32.07 | 29.99 | 29.30 | 28.62 | 27.95 | 27.29 | 26.64 | 26.00 | 25.38 | 24.79 | 24.20 | 23.65 |
| 12 x 8 x 16 HI-R-H Wall Type 1-Insulated & Perlite | 0.031 | 0.033 | 0.034 | 0.035 | 0.036 | 0.037 | 0.038 | 0.038 | 0.039 | 0.040 | 0.041 | 0.042 |
| 12 x 8 x 16 HI-R-H Wall Type 2-Insulated | 20.13 | 18.05 | 17.36 | 16.68 | 16.01 | 15.35 | 14.70 | 14.06 | 13.44 | 12.85 | 12.26 | 11.71 |
| 12 x 8 x 16 HI-R-H Wall Type 2-Insulated | 0.050 | 0.055 | 0.058 | 0.060 | 0.062 | 0.065 | 0.068 | 0.071 | 0.074 | 0.078 | 0.082 | 0.085 |
| 12 x 8 x 16 HI-R-H Wall Type 2-Insulated & Grouted 125lb/cu.ft. | 19.82 | 17.74 | 17.05 | 16.37 | 15.70 | 15.04 | 14.39 | 13.75 | 13.13 | 12.54 | 11.95 | 11.40 |
| 12 x 8 x 16 HI-R-H Wall Type 2-Insulated & Grouted 125lb/cu.ft. | 0.050 | 0.056 | 0.059 | 0.061 | 0.064 | 0.067 | 0.070 | 0.073 | 0.076 | 0.080 | 0.084 | 0.088 |
| 12 x 8 x 16 HI-R-H Wall Type 2-Insulated & Perlite | 33.47 | 31.39 | 30.70 | 30.02 | 29.35 | 28.69 | 28.04 | 27.40 | 26.78 | 26.19 | 25.60 | 25.05 |
| 12 x 8 x 16 HI-R-H Wall Type 2-Insulated & Perlite | 0.030 | 0.032 | 0.033 | 0.033 | 0.034 | 0.035 | 0.036 | 0.036 | 0.037 | 0.038 | 0.039 | 0.040 |
| 12 x 8 x 16 HI-R-H Wall Type 3-Insulated | 21.56 | 19.48 | 18.79 | 18.11 | 17.44 | 16.78 | 16.13 | 15.49 | 14.87 | 14.28 | 13.69 | 13.14 |
| 12 x 8 x 16 HI-R-H Wall Type 3-Insulated | 0.046 | 0.051 | 0.053 | 0.055 | 0.057 | 0.060 | 0.062 | 0.065 | 0.067 | 0.070 | 0.073 | 0.076 |
| 12 x 8 x 16 HI-R-H Wall Type 3-Insulated & Grouted 125lb/cu.ft. | 21.247 | 19.167 | 18.477 | 17.797 | 17.127 | 16.467 | 15.817 | 15.177 | 14.557 | 13.967 | 13.377 | 12.827 |
| 12 x 8 x 16 HI-R-H Wall Type 3-Insulated & Grouted 125lb/cu.ft. | 0.047 | 0.052 | 0.054 | 0.056 | 0.058 | 0.061 | 0.063 | 0.066 | 0.069 | 0.072 | 0.075 | 0.078 |
| 12 x 8 x 16 HI-R-H Wall Type 3-Insulated & Perlite | 34.90 | 32.82 | 32.13 | 31.45 | 30.78 | 30.12 | 29.47 | 28.83 | 28.21 | 27.62 | 27.03 | 26.48 |
| 12 x 8 x 16 HI-R-H Wall Type 3-Insulated & Perlite | 0.029 | 0.030 | 0.031 | 0.032 | 0.032 | 0.033 | 0.034 | 0.035 | 0.035 | 0.036 | 0.037 | 0.038 |